of the Department of Agriculture and Technical Instruction for Ireland from 1899 to 1913. These specimens are described externally and anatomically in the paper, and compared with the eight other specimens described by Moseley and Hertwig. The possibility of all these specimens belonging to one species is suggested and discussed, with the conclusion that it is quite likely that the genus contains one variable species only. On the other hand, further material is required for a final decision, and if the three species, *C. rigidus, profundus*, and *obtectus*, should prove valid, the Irish specimens would probably require a fourth species. It is further pointed out that the thick and rigid body of the anemones in question seems to be correlated with deep-sea life, and that although the genus has sometimes been regarded as a primitive one, it has a number of characteristics which it would seem can be considered only as specialisations or advanced features.

Paris.

Academy of Sciences, May 25.—M. Henri Deslandres in the chair.—E. **Goursat**: Some transformations of partial differential equations of the second order.—G. **Bigourdan**: The instruments and work of the Sainte-Geneviève Observatory. Historical account of the work of Pingré and of Lechevalier done between 1755 and 1836.—J. **Bossert**: Catalogue of the proper motion of 5671 stars, annotated and published by L. Schulhof.—J. **Baillaud**: The method of the scale of tints in photographic photometry.—C. **Guichard**: Congruences belonging to a linear complex such that the lines of curvature correspond on the two focal surfaces.—G. **Julia**: Families of functions of several variables.—M. **Janet**: Systems of partial differential equations and systems of algebraic forms.—G. **Sagnac**: The real relativity of the energy of the elements of radiation and the motion of waves in the æther.—F. **Vlès**: Ultra-violet spectrophotometry of the nitrophenols. Seventeen nitro-derivatives were examined and the spectra found to be, in general, constituted of three elements: a constant band, due to the NO_2 group; a band related to the presence of the benzene ring; and a third band the origin of which is doubtful.—M. **de Broglie**: The fine structure of X-ray spectra. Details of a doublet given by rhodium, and comparison with the K spectrum of tungsten.—J. L. **Pech**: Phenomena of antagonism between various radiations (ultra-violet, visible spectrum, and infra-red).—L. **Thielemans**: Regulation of cables for the transport of electrical energy to long distances.—P. **Bunet**: The transport of energy to great distances. Remarks on a recent communication by M. Brylinski on the same subject.—M. **Toporescu**: The lime and magnesia carried down by precipitates of ferric oxide. Varying weights of ferric oxide were precipitated in presence of constant quantities of calcium and magnesium salts, and the proportions of lime and magnesia carried down were determined. A second precipitation of the ferric oxide is sufficient to remove calcium salts, but this is not the case with magnesia.—L. **Guillet** and M. **Gasnier**: The plating with nickel of aluminium and its alloys. The aluminium or alloy is cleaned and roughened by sand-blasting, and then takes a satisfactory deposit of nickel. The influence of the size of the sand grains and the time elapsed between the sand-blasting and the deposit have been examined, and results are given.—A. C. **Vournazos**: A new series of complex combinations: the antimony oxyiodides. The mercury compound may be taken as a type of these substances; it has the composition $Hg(SbIO_2)$.—R. **Cornubert**: The constitution of some dialkyl*cyclo*hexanones. A study of the ketones obtained by treating *cyclo*hexanone with sodium and then with alkyl halides.—C. **Dufraisse**: The stereo-isomeric forms of benzoylphenylacetylene di-iodide. The conditions under which either of the two isomers can be isolated are given.—A. **Mailhe**: The catalytic hydrogenation of the ketazines.—L. **Moret**: The tectonic of the eastern bank of Lake Annecy.—A. **Brives**: Some results of a new journey in Morocco. A completion of geological work commenced in 1919.—P. **Bonnet**: The Permo-Triassic limit in the Himalayan-Armenian geosynclinal.—L. **Dunoyer** and G. **Reboul**: The prediction of the weather.—G. **Truffaut** and H. **Bezssonoff**: The influence of partial sterilisation on the composition of the microbial flora of the soil.—R. **Souèges**: The embryogeny of the Solanaceæ. Development of the embryo in Hyoscyamus and Atropa.—P. **Bertrand**: The constitution of the vascular system in ferns, in Pteridosperms, and in all ancient Phanerogams.—L. **Blaringhem**: The stability and fertility of the hybrid *Geum urbanum* × *G. rivale*. From the morphological point of view the descent of this hybrid is uniform and regularly fertile. Its mixed characters are sufficiently distinct from those of its parents to give a precise diagnosis, and as it propagates without variation in the wild state it can be described as a good systematic species.—J. **Feytaud**: The kings and queens of *Leucotermes lucifugus*.—A. **Mayer**, A. **Guieysse**, and E. **Fauré-Fremiet**: Pulmonary lesions determined by suffocating gases.—A. **Trillat** and M. **Mallein**: The projection of micro-organisms into the air. The influence of humidity.

Books Received.

Calcutta University Commission, 1917–19. Report. Vol. vi. Appendices and Index. Pp. vii+341+plates. (Calcutta: Superintendent, Government Printing, India.) 1 rupee or 1*s*. 6*d*.

A Monograph of the British Orthoptera. By W. J. Lucas. Pp. xii+264+xxv plates. (London: The Ray Society.) 1*l*. 5*s*. net.

The British Charophyta. By J. Groves and Canon G. R. Bullock-Webster. Vol. i. Nitelleæ. Pp. xiv+141+xx plates. (London: The Ray Society.) 1*l*. 5*s*. net.

Ozone. By Prof. E. K. Rideal. Pp. ix+198. (London: Constable and Co., Ltd.) 12*s*. net.

Thomas Henry Huxley. By Dr. L. Huxley. Pp. vii+120. (London: Watts and Co.) 3*s*. 6*d*. net.

Auguste Comte. By F. J. Gould. Pp. v+122. (London: Watts and Co.) 3*s*. 6*d*. net.

Is Spiritualism Based on Fraud? By J. McCabe. Pp. vii+160. (London: Watts and Co.) 3*s*. net.

The Systematic Treatment of Gonorrhœa in the Male. By N. Lumb. Second edition. Pp. viii+123. (London: H. K. Lewis and Co., Ltd.) 5*s*. net.

Optical Projection. By Lewis Wright. Fifth edition. Rewritten and brought up to date by R. S. Wright. In two parts. Part i.: The Projection of Lantern-Slides. Pp. viii+87. (London: Longmans and Co.) 4*s*. 6*d* net.

Diary of Societies.

THURSDAY, June 10.

Institution of Mining Engineers (at Geological Society), from 11 a.m. to 5.—(General Meeting.)—Prof. H. Louis: Compensation for Subsidences.—W. Maurice: The Fleissner Singing-flame Lamp.—W. Maurice: The Wolf-Pokorny and Wiede Acetylene Safety-lamps.—G. Oldham: The "Oldham" Cap Type Miner's Electric Safety-lamp.—Discussion on First Report of the Committee on "The Control of Atmospheric Conditions in Hot and Deep Mines."—D. S. Newey: A New Method of Working Thick Seams of Coal at Baggeridge Colliery.—T. G. Bocking: Protractors.—T. G. Bocking: Magnetic Meridian Observations; A Method of Utilising the Kew Observatory Records.

Royal Society, at 4.30.—Prof. A. V. Hill and W. Hartree: The Thermo-Elastic Properties of Muscle.—Sir James Dobbie and J. J. Fox: The Absorption of Light by Elements in the State of Vapour: (1) Selenium and

© 1920 Nature Publishing Group

Tellurium; (2) Mercury, Cadmium, Zinc, Phosphorus, Arsenic, Antimony.—Dr. A. E. H. Tutton: Monoclinic Double Selenates of the Copper Group.—H. G. Cannon: Production and Transmission of an Environmental Effect in *Simocephalus vetulus*.—E. C. Grey: The Enzymes of *B. coli communis* which are Concerned in the Decomposition of Glucose and Manitol. Part IV. The Fermentation of Glucose in the Presence of Formic Acid.—L. T. Hogben: Studies on Synapsis. II. Parallel Conjugation and the Prophase Complex in Periplaneta, with Special Reference to the Premeiotic Telophase.

LONDON MATHEMATICAL SOCIETY, at 5.—G. I. Taylor: (1) Tidal Oscillations in Gulfs and Rectangular Basins. (2) Diffusion by Continuous Movements.—H. B. C. Darling: Proofs of certain Identities and Congruences enunciated by Mr. S. Ramanujan.—M. J. M. Hill: The irreducibility of the Solution of an Algebraic Differential Equation.—F. B. Pidduck: Functions of Limiting Matrices.—W. P. Milne: The Relation between Apolarity and a certain Porism of the Cubic Curve.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 5.—Dr. A. F. Hurst: The Psychology of the Special Senses and their Hysterical Disorders (Croonian Lecture).

CONCRETE INSTITUTE, at 7.30—E. L. Joseph: Ventilation and Air-Purification as applied to Modern Concrete Buildings.

OPTICAL SOCIETY, at 7.30.—Miss A. B. Dale: Accuracy of Setting.—Dr. J. S. Anderson: A New Method of Immersion Refractometry.

INSTITUTE OF METALS (at Institution of Mechanical Engineers), at 8.—Prof. C. A. F. Benedicks: Recent Progress in Thermo-Electricity (Annual May Lecture).

SOCIETY OF ANTIQUARIES, at 8.30.

FRIDAY, JUNE 11.

INSTITUTION OF MINING ENGINEERS (at Geological Society), from 11 a.m. to 5.

ROYAL ASTRONOMICAL SOCIETY, at 5.—E. E. Barnard: Nova Persei No. 2 (Anderson).—A. S. Eddington: Radiation-pressure in Solar Phenomena.—R. A. Sampson: Geophysical Discussions, 1920 May 7: Determination of Longitude by Wireless Telegraphy.—Gén. Ferrié: Note sur les procédés actuels d'emploi de la télégraphie sans fil dans la détermination des Longitudes.—R. A. Fisher: A Mathematical Examination of the Methods of Determining the Accuracy of an Observation by the Mean Error and by the Square Mean Error.—H. S. Plaskett: The Intensity Distribution in the Continuous Spectrum and the Intensity of the Hydrogen Lines in γ Cassiopeiæ.—J. Lunt: The Spectra of Nova Aquilæ No. 3. Third Paper.

PHYSICAL SOCIETY OF LONDON, at 5.—Dr. T. Barratt and A. J. Scott: Radiation and Convection from Heated Surfaces.—J. S. G. Thomas: An Electrical Hot-Wire Inclinometer.—L. F. Richardson: Convective Cooling and the Theory of Dimensions.—J. W. T. Walsh: The Radiation from a Perfectly Diffusing Circular Disc.

MALACOLOGICAL SOCIETY OF LONDON (at Linnean Society), at 6.

MONDAY, JUNE 14.

VICTORIA INSTITUTE (at Central Hall, Westminster), at 4.30.—Very Rev. Dean Inge: Freedom and Discipline (Annual Address).

SOCIETY OF CHEMICAL INDUSTRY (London Section) (at Central House, Finsbury Square), at 5.—(Annual Meeting.)

SOCIETY OF ENGINEERS (at Geological Society), Special Summer Meeting, at 5.30.—E. Cressy: Great Engineering Adventures.

FARADAY SOCIETY (at Chemical Society), at 8.—Dr. A. Fleck and T. Wallace: Conduction of Electricity through Fused Sodium Hydrate.—Dr. H. F. Haworth: The Measurement of Electrolytic Resistance using Alternating Currents.—J. L. Haughton: The Measurement of Electrical Conductivity in Metals and Alloys at High Temperatures.—N. V. S. Knibbs and H. Palfreeman: The Theory of Electrochemical Chlorate and Perchlorate Formation.—J. B. Firth: The Sorption of Iodine by Carbon.—F. H. Jeffery: The Electrolysis of Solutions of Sodium Nitrate using a Copper Anode.—Dr. A. M. Williams: The Pressure Variation of the Equilibrium Constant in Dilute Solution.—Miss Nina Hosali: Description of Models illustrating Crystalline Form and Symmetry.

TUESDAY, JUNE 15.

ROYAL HORTICULTURAL SOCIETY, at 3.—Dr. A. B. Rendle: Plants of Interest in the Day's Exhibition.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 5.—Dr. A. F. Hurst: The Psychology of the Special Senses and their Hysterical Disorders (Croonian Lecture).

ROYAL STATISTICAL SOCIETY, at 5.15.—G. F. Shirras: Some Effects of the War on Gold and Silver.

MINERALOGICAL SOCIETY (at Geological Society), at 5.30.—W. A. Richardson: The Fibrous Gypsum of Nottinghamshire.—F. P. Mennell: Rare Zinc-Copper Minerals from the Rhodesian Broken Hill Mine, Northern Rhodesia.—Prof. R. Ohashi: The Plumbiferous Barytes from Shibukuro, Prefecture of Akita, Japan.—W. A. Richardson: A New Model Rotating Stage Petrological Microscope.

ZOOLOGICAL SOCIETY OF LONDON, at 5.30.—Dr. P. Chalmers Mitchell: Report on the Additions to the Society's Menagerie during the Month of May, 1920.—Prof. J. E. Duerden: Exhibition of, and Remark on, Ostrich Eggs.—Miss Joan B. Procter: (1) A Collection of Tailless Batrachians from East Africa made by Mr. A. Loveridge in the Years 1914–19. (2) The Type-specimen of *Rana holsti*, Boulenger.—R. I. Pocock: The External and Cranial Characters of the European Badger (Meles) and the American Badger (Taxidea).—Dr. R. J. Tillyard: The Life-history of the Dragon-fly.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—Prof. F. G. Parsons: Distribution of Hair and Eye Colour in the British Isles.

WEDNESDAY, JUNE 16.

ROYAL METEOROLOGICAL SOCIETY (at the Royal Astronomical Society), at 5.—W. H. Dines: The Ether Differential Radiometer.—Prof. S. Chapman and E. A. Milne: The Composition, Ionisation, and Viscosity of the Atmosphere at Great Heights.

INSTITUTION OF ELECTRICAL ENGINEERS (at Institution of Mechanical Engineers), at 6.—Discussion on paper read by Sir Dugald Clerk before the Royal Society of Arts, entitled Distribution of Heat, Light, and Motive Power by Gas and Electricity.—Sir Dugald Clerk, Prof. A. Smithells, and Prof. J. W. Cobb: The Report on the Coal Gas and Electrical Supply Industries of the United Kingdom to the President of the Institution of Gas Engineers.

ROYAL MICROSCOPICAL SOCIETY, at 8.—Sir Horace Darwin and W. G. Collins: A Universal Microtome.—L. Hogben: The Problem of Synapsis.

THURSDAY, JUNE 17.

ROYAL SOCIETY, at 4.30.—Prof. W. Bateson: Genetic Segregation (Croonian Lecture).

LINNEAN SOCIETY, at 5.—Celebration of the Centenary of Sir Joseph Banks, Bart. (1743–1820).—Dr. B. Daydon Jackson: Banks as a Traveller.—Dr. A. B. Rendle: Banks as a Patron of Science.—J. Britten: Banks as a Botanist.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 5.—Dr. A. F. Hurst: The Psychology of the Special Senses and their Hysterical Disorders (Croonian Lecture).

CHEMICAL SOCIETY (at Institution of Mechanical Engineers), at 8.—Prof J. C. McLennan: Helium.

FRIDAY, JUNE 18.

ROYAL SOCIETY OF ARTS (Indian Section), at 4.30.—Sir Valentine Chirol: The Enduring Power of Hinduism (Sir George Birdwood Memorial Lecture).

GEOPHYSICAL COMMITTEE (at Royal Astronomical Society), at 5.—Commander H. D. Warburg, Prof. H. Lamb, Dr. J. Proudman, Prof. A. F. Dodson, Major A. J. Wolff, and H. L. P. Jolly: Discussion on Tides.

SATURDAY, JUNE 19.

BRITISH PSYCHOLOGICAL SOCIETY (at University College, Gower Street), at 3.30.—Dr. J. Drever: The Emotional Phases of Affective Experience.

PHYSIOLOGICAL SOCIETY (at Physiological Laboratory, University of London, South Kensington), at 4.30.—G. Aurep and C. Lovatt Evans: The Mode of Action of Vaso-dilator Nerves.—C. Lovatt Evans: The Lactic Acid Content of Plain Muscle.

CONTENTS.

PAGE

Naval Education 445
The Ultimate Data of Physics. By Prof. G. Dawes Hicks 446
Life and Letters of Silvanus P. Thompson. By A. A. Campbell Swinton, F.R.S. 448
Academic Research and Industrial Application. By G. T. M. 449
Ancestral Studies of Compositæ 450
Our Bookshelf 450

Letters to the Editor:—

The Organisation of Scientific Work in India.—**Sir Thomas H. Holland, K.C.I.E., F.R.S.** . . . 452
Anti-Gas Fans.—**Prof. A. J. Allmand** 453
Attainment of High Levels in the Atmosphere.—**W. H. Dines, F.R.S.** 454
Central Wireless Station for Astronomy.—**Major William J. S. Lockyer** 454
The "Flight" of Flying-fish.—**Prof. W. N. F. Woodland; Sir David Wilson-Barker** . . 455
Fellow-Workers. — **Sir Ronald Ross, K.C.B., F.R.S.** 455
The Approximate Evaluation of Definite Integrals between Finite Limits.—**A. F. Dufton** 455
The Cost of Laboratory Fittings.—**Alan E. Munby** 456
The First Act of a Young Thrush.—**Honor M. M. Perrycoste** 456
Marat and the Deflection of Light.—**Prof. W. A. Osborne** 456
British and Metric Systems of Weights and Measures.—**Alfred S. E. Ackermann** 456
Aircraft Photography in the Service of Science. (*Illustrated.*) By H. Hamshaw Thomas . . 457
The Dynamics of Shell Flight. (*With Diagrams.*) By R. H. Fowler 459

Obituary:—

Prof. L. Doncaster, F.R.S. By Prof. W. Bateson, F.R.S. 461
Notes 462

Our Astronomical Column:—

Photographs of the Brorsen-Metcalf Comet 467
The Planetary Families of Comets 467
The Thunderstorms of May 29 and the Louth Disaster 468
Annual Meeting of the British Science Guild . . 468
Annual Visitation of the Royal Observatory, Greenwich 469
Applied Statistics. By D. H. 470
The Imperial College: Claim to University Status. 471
The Smoke Nuisance. By J. B. C. 471
The Molecular Energy in Gases 472
University and Educational Intelligence 472
Societies and Academies 473
Books Received 475
Diary of Societies 475

© 1920 Nature Publishing Group